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ABSTRACT

This learning module reviews basic mathematics operations involving fractions and decimals and explains the use of the percent wheel in solving percent problems. The module, which was developed for use in a course of six 2-hour sessions for hospital employees working in the environmental services and nutritional services departments, is intended to enhance basic math skills and develop reasoning and problem-solving skills. It consists of a series of session outlines and activities in which students are asked to use workplace- or home-related situations to set up word problems involving fractions, decimals, or percents. The following topics are covered in the sessions: estimating/rounding, problem solving, operations involving fractions, fraction word problems, decimal skills and decimal word problems, and percent skills and percent word problems. Each session guide includes some or all of the following: objective, list of required materials, instructor's notes pertaining to the session learning activities, session introduction, instructional text, and one or more learning activities. Concluding the module is an answer key. (MN)

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December 1, 1993

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Connie Tripp
Karen Fletcher

December 1, 1993

INTRODUCTION TO THE WORKPLACE LITERACY PROJECT

This module was developed by educators from Emily Griffith Opportunity School as part of a National Workplace Education grant funded by the U.S. Department of Education. A cooperative effort between the business and education communities, the program was designed specifically to enhance employees' literacy skills.

Direct benefits to the workforce include improved morale and motivation, self-esteem, teamwork, and promotional opportunities.

We gratefully acknowledge the assistance of our partners. In addition, we recognize all of the students who participated in classes and who provided us with invaluable feedback for strengthening future classes.

We hope partnerships such as these will provide the catalyst for developing new or continued on-site educational opportunities.

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SYNOPSIS

This six-week class is designed around participants' stated needs. It reviews and enhances their basic math skills and introduces them to the concepts of problem solving. The class will review fractions, decimals, and percents as a means to apply problem-solving strategies.

COURSE OBJECTIVES

1. Participants can use the five-step problem solving model.

2. Participants can set up and solve word problems using fractions, decimals, and percents.

3. Participants can apply the math problem-solving model in work-related situations.

INTRODUCTION

This curriculum is designed for hospital employees in the Environmental Services and Nutritional Services departments. The overall objectives and the situations used are based on observations of employees on the job as well as experiences from teaching basic skills in the workplace. The goal of the curriculum is to enhance basic math skills and develop reasoning and problem-solving skills, thereby increasing student confidence and the possibility for job advancement. The six two-hour sessions stress student involvement in applying the skills learned.

The class provides review of basic math operations with fractions and decimals and the use of the Percent Wheel in solving percent problems. The introduction to the problem-solving model provides a step-by-step method for recognizing and locating necessary information and determining the correct operation to use to compute the answer. Students set up word problems as well as develop questions and number sentences from the facts given. They are asked to bring in workplace- or home-related situations which use fractions, decimals, or percents.

Ample practice exercises are provided for both review and problem solving. The word problems range from simple to more complex, including situations with too much information, and problems which require multiple operations. There are opportunities for the instructor to supplement other material in place of or in addition to exercises provided. In this way, the instructor can better accommodate the individual needs of students.

By creating and solving work-related problems, students can see how math relates to their everyday lives. Hopefully, students' use of the problem-solving model will enable them to apply its principles to other situations at work and at home.

SESSION 1 - ESTIMATING/ROUNDING

OBJECTIVE: **Introduce, demonstrate and practice estimating and rounding to prepare for the problem-solving model.**

Required materials: Black/white board

INSTRUCTOR'S NOTES	ACTIVITIES
* Student Handbook - Introduction Read & discuss * Estimating warm-up (15 minutes) Ask questions for discussion such as: - What is estimating? - What does it mean? - When have you used estimating on the job? At home? - How and why do you use estimating to help solve problems? - Have you thought about how you use math everyday?	Introduction in Student Handbook.
Activity #1 in Student Handbook (30 minutes) * Work in pairs * Share and discuss as a group	Activity #1 - What's Your Estimate?

SESSION 1 - ESTIMATING/ROUNDING

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #2 in Student Handbook (45 minutes) * If facilities available, have students measure elevator and jello pan during class time. If not available, substitute something in classroom, i.e. chalkboard, table, room size, etc. * Work in small groups for #1 & 2 * Work individually on #3 - may do as homework if time is short	Activity #2 - Estimating Facts
Activity #3 - Student Handbook (30 minutes) * Review place value * Review and discuss examples with class * Work each section of activity individually, elicit response and discuss	Activity #3 - Rounding

SESSION 1 - ESTIMATING/ROUNDING

Session 1 is divided into two parts. The first part, estimating, deals with ways to make problem-solving easier. You will discover that you use estimating in your daily life, but you may not have realized you were using it to solve problems. For example, have you asked yourself, "Does this answer make sense?" If you've estimated an answer first, you'll know whether or not it makes sense.

Part 2, rounding, will review specific ways to round numbers in computation as well as with estimating.

SESSION 1 - ACTIVITY #1

WHAT'S YOUR ESTIMATE?

1. You plan to go to an amusement park. You wonder how much money you'll spend altogether. What facts would you need in order to estimate how much money to take?

   _____

2. Read these sentences. Draw a circle around the estimate that makes the best sense. Then tell why you think it makes the best sense.

   a. You must walk 1 whole block to the bus stop. How long will it take you?

      1 minute 5 minutes 15 minutes

      That's the best estimate because _____

      _____

   b. Bananas cost $1.15 for 3 pounds at Cub Foods. You want to buy 1 pound. About how much will you pay?

      $.80 $.15 $.35

      That's the best estimate because _____

      _____

   c. Look at this page. About how many inches long is it?

      12 inches 4 inches 20 inches

      That's the best estimate because _____

      _____

SESSION 1 - ACTIVITY #2

ESTIMATING FACTS

Practice using estimated facts to get an estimated answer. Then find the actual answer.

		Estimate	Actual
1.	**A service elevator**		
	a. How tall is the elevator?	_____	_____
	b. How wide is the elevator?	_____	_____
	c. How long does it take before the elevator doors close?	_____	_____

2.	**A jello pan**		
	a. How long is the pan?	_____	_____
	b. How many cups of liquid does it take to fill the pan?	_____	_____

SESSION 1 - ACTIVITY #2 (cont.)

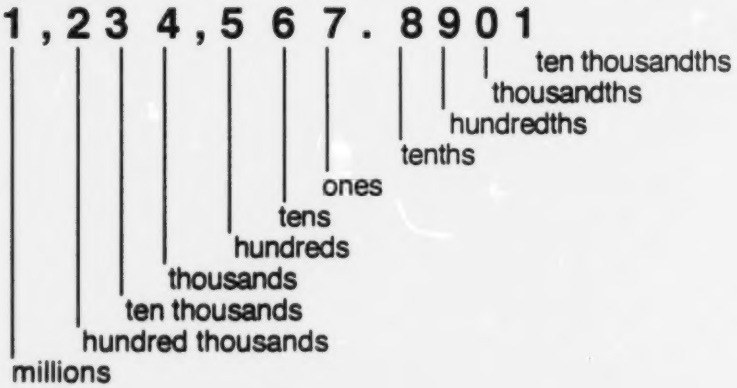
Now choose some other things you use or see every day. Write questions like: How tall is it? How many _____ does it hold? Estimate answers. Then find actual answers.

		Estimate	Actual
3.	**Name of thing** _____	_____	_____
	a. How _____	_____	_____
	_____		
	b. How _____	_____	_____
	_____		
4.	**Name of thing** _____	_____	_____
	a. How _____	_____	_____
	_____		
	b. How _____	_____	_____
	_____		

SESSION 1 - ACTIVITY #3

ROUNDING

Place Value



To round, you need to remember place value.
To round, look at the place being rounded to.

- If the number to the right is less than 5, the number being rounded stays the same.

- If the number is 5 or more, the number goes up by 1.

Example: Round 235 and 257 to the nearest 100.

hundred
235
less than 5
so rounds to 200

hundred
257
5 or more so
rounds to 300

Example: Round 7.665 and .823 to the nearest hundredth.

hundredth
7.665
5 or more
so rounds to 7.67

hundredth
.823
less than 5
so rounds to .82

SESSION 1 - ACTIVITY #3 (cont.)

A. Round:

1. $19.23 - to the nearest 10 cents _____
2. 72,726 Bronco fans - to the nearest thousand fans _____
3. 98.6^{o} - to the nearest degree _____
4. 5,376 latex gloves - to the nearest hundred gloves _____

B. Compare these problems. Circle the 2 you think would be easier to solve.

1. a. $\begin{array}{r} 2{,}329 \\ -\ 458 \end{array}$ b. $\begin{array}{r} 2{,}300 \\ -\ 500 \end{array}$

2.a. $136\overline{)2778}$ b. $140\overline{)2800}$

C. Round to the nearest 10 (for 2-digit numbers) and nearest 100 (for 3-digit number.) Then solve only rounded problems.

	Actual	Rounded		Actual	Rounded
1.	$\begin{array}{r} 296 \\ \times\ 27 \end{array}$		2.	$\begin{array}{r} 132 \\ 266 \\ +\ 87 \end{array}$	

SESSION 1 - ACTIVITY #3 (cont.)

For the following, round the numbers in your head and see how quickly you can find the correct estimated answer.

John and Cindy ate lunch together in the hospital cafeteria. John had "Chef's surprise" for $2.25 and milk for $.30. Cindy had a salad for $1.95 and a $.50 Coke.

a. About how much did John spend on lunch?

$2.25 $2.60 $3.00

That's the best estimate because _____

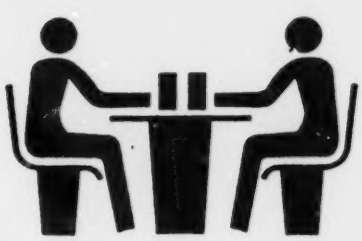
_____

b. About how much did Cindy spend on lunch?

$2.80 $2.25 $2.50

That's the best estimate because _____

_____



SESSION 2 - PROBLEM-SOLVING MODEL

OBJECTIVE: Introduce, demonstrate, and practice using the 5-step problem-solving model.

Required materials: Black/white board
Transparencies
Overhead projector (if available)

INSTRUCTOR'S NOTES	ACTIVITIES
* Use a transparency of Problem-Solving Symbols	* Discuss Symbols
Activity #4 in Student Handbook (45 minutes) * Do #1-5 individually and discuss as group * Discuss "clue words" as group, check for understanding * Work on labeling individually and discuss as group	Activity #4 - Problem-Solving Model * Clue Words * Labeling

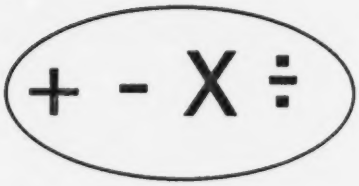
SESSION 2 - PROBLEM-SOLVING MODEL

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #5 - in Student Handbook (30 minutes) * Do Example A as group * Do Example B individually, discuss as group - be sure students star clue words - discuss unnecessary facts in problem	Activity #5 - Using the Problem-Solving Model
Activity #6 - in Student Handbook (15 minutes) * Have students work in pairs * Elicit volunteers to write answers on board	Activity #6 - Writing Number Sentences
Activity #7 in Student Handbook (30 minutes) * Have students work individually * Elicit responses and discuss * Provide additional practice, if necessary	Activity #7 - Write Your Own Questions

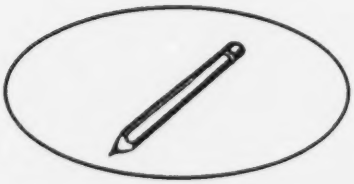
PROBLEM-SOLVING SYMBOLS

= Find the Question

= Facts



= Operation



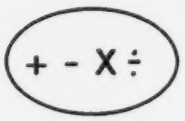
= Computation

= Check (Does answer make sense?)

SESSION 2 - ACTIVITY #4

PROBLEM-SOLVING MODEL

Fill in the blanks below to complete the problem-solving model. Use the word below the symbol.



Operation

Computation

Question

Check

Facts

1. First, you must find the _____. That tells you what you need to figure out.

2. Next, you need to decide which numbers to use to solve the problem. You need to find the _____. There may be extra or missing information.

3. Then you decide whether to add, subtract, multiply, or divide. You are identifying the _____.

4. Now, you do the proper _____ in order to find the answer.

5. Last, reread the question and make sure you've answered it. _____ to see that your answer makes sense!

SESSION 2- ACTIVITY #4 (cont.)

CLUE WORDS

Before we practice identifying each of these steps, let's review clue words that help identify operations we need to solve problems.

ADD	SUBTRACT
- Altogether/Combine - In all - Total - Amount - More than - Increase	- Remain - Difference - Most, least (comparison or change) - More or less than - Left or left over
MULTIPLY	**DIVIDE**
- Altogether - In all - Total	- Equally - Evenly - Each

SESSION 2- ACTIVITY #4 (cont.)

FILL IN THE LABEL

Fill in the blanks using labels that give the numbers meaning. The problem and the answer make more sense when you use labels.

1. Joe worked 40 _____ one week, 42 _____ the next, and 38.5 _____ the following week. How many _____ did he work in an average week?

2. Marcella went on a diet in March. She lost 5 _____ the first month, 6 1/2 ____ in April, and 4 _____ in May. What was her total weight loss?

3. As a nutrition aide, Leeann prepares salads in the hospital kitchen. If she normally shreds 7 _____ of lettuce for 40 servings, how many _____ will she need to shred to make 60 servings?

4. Jerry walked 14 _____ in his neighborhood last week and 25 _____ this week. How many _____ did he walk altogether?

5. Sally bought 6 1/2 _____ of fabric for curtains and only used 4 3/4 _____. How much fabric does she have left?

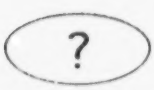
6. Kristina spent 55 _____ doing her homework, 20 _____ cleaning her room and 30 _____ watching TV. How much more time did she spend doing homework than cleaning her room?

SESSION 2 - ACTIVITY #5

USING THE PROBLEM-SOLVING MODEL

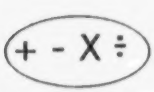
To help you find the parts of a word problem, try doing this: underline the question, circle the facts, and put a star above the clue words.

A. Alan has saved $132.50 for a television. The TV he wants to buy costs $229.99. How much more does Alan need to save before he can make his purchase?



How much **more** does Alan need to save before he can make his purchase?

$132.50 $229.99



To find how much more Alan needs, you must subtract.

$229.99
- $132.50
$ 97.49

$97.49
+ $132.50
$229.99

To check a subtraction problem, add the answer to the number you subtracted. You should get the number you subtracted from.

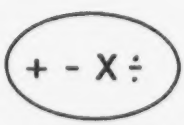
SESSION 2 - ACTIVITY #5 (cont.)

USING THE PROBLEM-SOLVING MODEL

B. During the track meet, Laura ran the 100-yard dash in 15.1 seconds and placed third. When Laura ran the 200-meter race, she ran the first 100 meters in 13.92 seconds, and the second 100 meters in 13.12 seconds. What was her total time for the race?

What was her total time for the race?

13.92 seconds 13.12 seconds

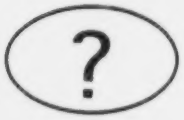


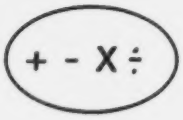
SESSION 2 - ACTIVITY #5 (cont.)

USING THE PROBLEM-SOLVING MODEL

Be sure to mark the question, necessary facts, and clue words. Then fill in the blanks next to each symbol.

C. A county in Minnesota has 32 snowplows. Each driver works an 8-hour shift. How many hours do all the drivers spend plowing snow in a day? If this county has 3,812 miles of country road, how many miles of road must each snowplow cover in order to plow all the county's roads?





SESSION 2 - ACTIVITY #6

WRITING NUMBER SENTENCES

Directions: Read each problem. Locate the necessary facts and set up the problem to compute correct answers.

Example: Ellie worked 32 hours last week. She earns $4.80/hour. How much money did she earn last week?

32	x	$4.80	=	$153.60
number	operation symbol	number		answer

---

1. Stella drove 342 miles on 15 gallons of gas. How many miles per gallon did she get?

_____	_____	_____	=	_____
number	operation symbol	number		answer

2. Last week, Renee worked 27 hours, and this week she worked 33. How many more hours did she work this week than last?

_____	_____	_____	=	_____
number	operation symbol	number		answer

SESSION 2 - ACTIVITY #6 (cont.)

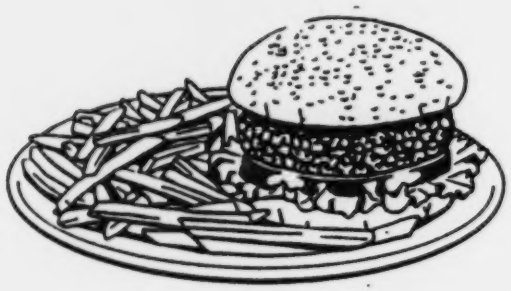
WRITING NUMBER SENTENCES

3. Julius and 3 of his friends each spent $3.15 on lunch. How much was their total bill?

_____	_____	_____	=	_____
number	operation symbol	number		answer

4. If a box of Jujubees contains 410 calories, and each Jujubee has 7 calories, how many Jujubees are in a box?

_____	_____	_____	=	_____
number	operation symbol	number		answer



SESSION 2 - ACTIVITY #7

WRITE YOUR OWN QUESTIONS

To decide which operation to use, you must read carefully. Write 2 of your own questions for each group of facts as practice in learning to read carefully.

1. Jose has 11 dozen eggs. Maria has 9 dozen. Write a question about the facts if the answer is:

   (a) 2 dozen. How many more eggs does Jose have than Maria?

   (b) 20 dozen, or 240 eggs. How many eggs do Jose and Maria have altogether?

2. It takes Andrea 27 minutes to drive to work. Teresa can get there in 12 minutes.

   Write a question about the facts if the answer is:

   (a) 15 minutes _____

   _____

   _____

   (b) More than twice as long.

   _____

   _____

SESSION 2 - ACTIVITY #7 (cont.)

WRITE YOUR OWN QUESTIONS

3. Sarah buys 3 lbs. of chicken for $3.87. Lou buys 2 lbs. of hamburger for $4.78.

   Write a question about the facts if the answer is:

   (a) $.91 _____
   _____
   _____

   (b) $1.10 _____
   _____
   _____

4. Anton attends school 5 days a week, 6 hours a day. Julia attends school 12 1/2 hours per week.

   Write a question about the facts if the answer is:

   (a) 30 hours _____
   _____
   _____

   (b) 17 1/2 hours _____
   _____
   _____

SESSION 3 - FRACTION SKILLS REVIEW

OBJECTIVE: Review and practice all fraction operations.

Required materials: Black/white board
Scratch paper
Overhead (optional)

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #8 - in Student Handbook (30 minutes) - Use to review 3 forms of fractions - Work individually and supplement with additional practice on board if necessary	Activity #8 - Forms of Fractions
Activity #9 - (10 minutes) - Draw this chart on the board or a transparency and write a list of proper, improper fractions, whole numbers and mixed numbers on the board. Have students fill in the chart with the numbers from the list.	Activity #9 - Identify Fractions and Whole numbers

Whole Numbers	Proper Fractions	Improper Fractions	Mixed Numbers
9	$\frac{4}{5}$	$\frac{7}{4}$	$1\frac{1}{2}$

SESSION 3 - FRACTION SKILLS REVIEW

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #10 - in Student Handbook (15 minutes) - Use to review the rules for adding and subtracting - Demonstrate with additional example on board - Work problems individually and supplement with additional practice at board	Activity #10 - Adding and Subtracting With Like Denominators
Activity #11 - in Student Handbook (30 minutes) - Review rules for like denominators - Work #1-3 together on board - Work in pairs for #4-8 - Elicit answers and ask for method used	Activity #11 - Adding and Subtracting with Unlike Denominators
Activity #12 - in Student Handbook (20 minutes) - Review rules for borrowing - Work individually and discuss answers - Supplement with more practice if necessary	Activity #12 - Borrowing and Subtracting

SESSION 3 - FRACTION SKILLS REVIEW

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #13 - in Student Handbook (25 minutes) - Review multiplying and dividing rules - Work several problems together on board and complete exercise individually	Activity #13 - Multiplying and Dividing
Activity #14 - in Student Handbook - Assign as homework - Ask students to bring a recipe or fraction problem from the workplace or home to the next session	Activity #14 - Equivalent Fractions

SESSION 3 - ACTIVITY #8

FORMS OF FRACTIONS

Proper Fraction - The numerator (or top number) is less than the denominator (or bottom number).

Example: $\frac{3}{4}$ $\frac{13}{21}$ $\frac{15}{16}$

A proper fraction is less than all the parts the whole is divided into. The value of a proper fraction is always less than one.

Improper fraction - The numerator is equal to or larger than the denominator.

Example: $\frac{5}{5}$ $\frac{12}{7}$ $\frac{65}{51}$

An improper fraction is all the parts that a whole is divided into such as 8/8, or it is more than the total parts in the whole. The value of an improper fraction is either equal to one or more than one.

Mixed number - A whole number plus a fraction.

Example: $2\frac{5}{8}$ $12\frac{9}{10}$ $6\frac{20}{23}$

SESSION 3 - ACTIVITY #8 (cont.)

* To change an improper fraction to a mixed number, divide the denominator into the numerator.

$\frac{5}{5} = 5\overline{)5} = 1$ $\quad 65/51 = .51\overline{).65}$ (1, remainder 14)

Put the remainder over the number you divided by to make a proper fraction.

* To change a mixed number to an improper fraction, multiply the denominator by the whole number and add the numerator. Then put the total over the denominator to make an improper fraction.

$12\frac{9}{10} = 10 \times 12 = 120 + 9 = 129 = 129/10$

$6\frac{20}{23} = 23 \times 6 = 138 + 20 = 158 = 158/23$

For the following, change the mixed numbers to improper fractions, improper fractions to mixed numbers, and leave the proper factions alone.

1. 45/20 _____ 2. 15/27 _____ 3. 5 7/16 _____

SESSION 3 - ACTIVITY #8 (cont.)

4. 3/20 _____ 5. 10 4/5 _____ 6. 13/6 _____

7. 97/30 _____ 8. 11 2/3 _____ 9. 90/91 _____

SESSION 3 - ACTIVITY #10

ADDING AND SUBTRACTING FRACTIONS WITH LIKE DENOMINATORS

* To add fractions with like denominators:

$$\frac{4}{9} + \frac{2}{9} = \frac{6}{9}$$

Step 1:. Add the numerators (4 + 2)

Step 2. Put the total over the denominator

ADD:

1. $\frac{5}{12} + \frac{6}{12}$ = _____

2. $\frac{3}{10} + \frac{5}{10}$ = _____

3. $\frac{7}{20} + \frac{4}{20} + \frac{1}{20}$ = _____

4. $\frac{4}{11} + \frac{3}{11} + \frac{2}{11}$ = _____

5. $\frac{8}{45} + \frac{16}{45}$ = _____

SESSION 3 - ACTIVITY #10 (cont.)

* To subtract fractions with like denominators:

$$\frac{7}{11} - \frac{4}{11} = \frac{3}{11}$$

Step 1. Subtract the numerators (7 - 4)

Step 2. Put the answer over the denominators.

SUBTRACT:

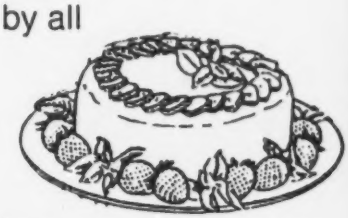
1. $\frac{6}{7}$	**2.** $\frac{9}{11}$	**3.** $\frac{15}{16}$	**4.** $\frac{23}{24}$	**5.** $\frac{97}{100}$
$-\frac{2}{7}$	$-\frac{3}{11}$	$-\frac{9}{16}$	$-\frac{12}{24}$	$-\frac{36}{100}$

SESSION 3 - ACTIVITY #11

ADDING AND SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS

EXAMPLE: You're combining 2 basic cake recipes to make one larger cake. One recipe calls for 3/4 c. oil and the other 2/3 c. oil. How do you figure out how much oil you need altogether?

REMEMBER: To work with fractions with unlike denominators, you need to find the lowest common denominator (the smallest number that can be divided evenly by all denominators).



Methods to find the common denominator:

A. Use the largest denominator in the problem.

B. Multiply the denominators together.

C. Go through the multiplication table of the largest denominator.

$$\begin{array}{r} \frac{2}{3} \\ + \\ \frac{3}{4} \\ \hline \end{array}$$

Method B works for this problem

$$\begin{array}{l} \frac{2}{3} \times 4 = \frac{8}{12} \\ + \\ \frac{3}{4} \times 3 = \frac{9}{12} \\ \qquad\qquad \frac{17}{12} = 1\ 5/12 \text{ c. oil} \end{array}$$

SESSION 3 - ACTIVITY #11 (cont.)

ADD or SUBTRACT:

1.
$$\begin{array}{r} \frac{3}{12} \\ + \\ \frac{5}{9} \\ \hline \end{array}$$

2.
$$\begin{array}{r} \frac{5}{6} \\ + \\ \frac{2}{7} \\ \hline \end{array}$$

3.
$$\begin{array}{r} \frac{3}{4} \\ - \\ \frac{5}{8} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 12\frac{1}{2} \\ - \\ 8\frac{3}{7} \\ \hline \end{array}$$

5.
$$\begin{array}{r} \frac{2}{3} \\ + \\ \frac{1}{6} \\ + \\ \frac{11}{12} \\ \hline \end{array}$$

6.
$$\begin{array}{r} \frac{2}{3} \\ - \\ \frac{3}{7} \\ \hline \end{array}$$

7.
$$\begin{array}{r} \frac{7}{10} \\ + \\ \frac{3}{4} \\ \hline \end{array}$$

8.
$$\begin{array}{r} \frac{1}{2} \\ - \\ \frac{3}{10} \\ \hline \end{array}$$

Did you reduce your answers to lowest terms?

SESSION 3 - ACTIVITY #12

BORROWING AND SUBTRACTING FRACTIONS

* To subtract a fraction from a whole number:

$$\begin{array}{r} 7 \\ -\ \frac{2}{3} \\ \hline \end{array} \quad = \quad \begin{array}{r} 6\frac{3}{3} \\ \frac{2}{3} \\ \hline 6\frac{1}{3} \end{array}$$

Step 1. Borrow 1 from the whole number and rewrite as a fraction with the same denominator as the fraction you're subtracting.

Step 2. Subtract as usual.

* To subtract mixed numbers:

$$\begin{array}{r} 14\frac{3}{8} \\ -\ 9\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 13\frac{8}{8} + \frac{3}{8} \\ 9\frac{6}{8} \\ \hline \end{array}$$

Step 1. Find the lowest common denominator.

Step 2. Borrow 1 from 14 and add to 3/8.

$$\begin{array}{r} 13\frac{8}{8} + \frac{3}{8} \\ -\ 9\frac{6}{8} \\ \hline \end{array} = \begin{array}{r} 13\frac{11}{8} \\ 9\frac{6}{8} \\ \hline 4\frac{5}{8} \end{array}$$

Step 3. Add the 8/8 to 3/8.

Step 4. Subtract the numerators and the whole number.

SESSION 3 - ACTIVITY #12 (cont.)

* To subtract a fraction from a whole number:

SUBTRACT:

1. $4 - \frac{3}{4} = $ _____

2. $8\frac{2}{9} - 4\frac{5}{9} = $ _____

3. $10 - \frac{13}{14} = $ _____

4. $30\frac{1}{3} - 16\frac{8}{11} = $ _____

5. $34 - \frac{6}{10} = $ _____

6. $7\frac{2}{3} - 2\frac{5}{6} = $ _____

7. $17 - \frac{5}{8} = $ _____

8. $15\frac{3}{4} - 16\frac{7}{8} = $ _____

SESSION 3 - ACTIVITY #13

MULTIPLYING AND DIVIDING FRACTIONS

REMEMBER: You don't need to find a common denominator when you multiply or divide fractions.

* To multiply fractions:

$$\frac{2}{3} \times \frac{1}{2} = \frac{2}{6}$$

Step 1. Multiply the top numbers to find the numerator of the answer.

Step 2. Multiply the bottom numbers to find the denominator of the answer.

$$\frac{2}{6} = \frac{2 \div 2}{6 \div 2} = \frac{1}{3}$$

Step 3. Reduce to lowest terms if necessary.

SESSION 3 - ACTIVITY #13 (cont.)

Sometimes, you can use a shortcut, canceling.

*To cancel:

Step 1. Look at the fractions to see if opposite numerators and denominators can be divided by the same number.

Step 2. Divide

Step 3. Multiply the new numerators and denominators.

$$\frac{3}{\cancel{8}_{2}} \times \frac{\cancel{4}^{1}}{7} = \frac{3}{14}$$

* To multiply a fraction by a whole number:

Step 1. Put the whole number over 1. $\frac{2}{3} \times 8 = \frac{2}{3} \times \frac{8}{1} = \frac{16}{3} = 5\frac{1}{3}$

Step 2. Multiply.

* To multiply with mixed numbers, change the mixed number or numbers to improper fractions.

$$4\frac{1}{2} \times \frac{3}{5} = \frac{9}{2} \times \frac{3}{5} = \frac{27}{10} = 2\frac{7}{10}$$

SESSION 3 - ACTIVITY #13 (cont.)

Multiply and Reduce

1. $4 \times \frac{3}{8} =$	2. $\frac{9}{16} \times \frac{8}{15} =$	3. $6\frac{3}{7} \times \frac{4}{5} =$
4. $2\frac{1}{3} \times 1\frac{1}{5} =$	5. $\frac{11}{12} \times \frac{5}{11} \times \frac{8}{15} =$	6. $\frac{5}{8} \times 1\frac{1}{4} =$
7. $6 \times \frac{4}{7} =$	8. $\frac{4}{15} \times \frac{3}{4} =$	9. $\frac{3}{10} \times 29 =$
	10. $7\frac{2}{3} \times 12\frac{1}{8} =$	

Dividing Fractions

* To <u>divide</u> fractions:

<u>Step 1.</u> Invert (turn upside down) the fraction on the right.

$$\frac{5}{8} \div \frac{3}{10} = \frac{5}{8} \div \frac{10}{3}$$

<u>Step 2.</u> Change the division sign to a multiplication sign and multiply as usual.

$$\frac{5}{\cancel{8}_4} \times \frac{\cancel{10}^5}{3} = \frac{25}{12} = 2\frac{1}{12}$$

* To divide whole numbers by fractions or fractions by whole numbers:

$$48 \div \frac{1}{9} = \frac{48}{1} \div \frac{9}{1}$$

<u>Step 1.</u> Put the whole number over 1.
<u>Step 2.</u> Invert the fraction on the right.

$$\frac{48}{1} \times \frac{9}{1} = \frac{432}{1} = 432$$

<u>Step 3.</u> Change the division sign to a multiplication sign and multiply.

SESSION 3 - ACTIVITY #13 (cont.)

* To divide with mixed numbers:

Step 1. Change the mixed number to an improper fraction

$$5\frac{5}{6} \div 3\frac{5}{12} = \frac{35}{6} \div \frac{41}{12}$$

Step 2. Invert the fraction on the right.

Step 3. Change the division sign to a multiplication sign and multiply.

$$\frac{35}{\cancel{6}_{1}} \times \frac{\cancel{12}^{2}}{41} = \frac{70}{41} = 1\frac{29}{41}$$

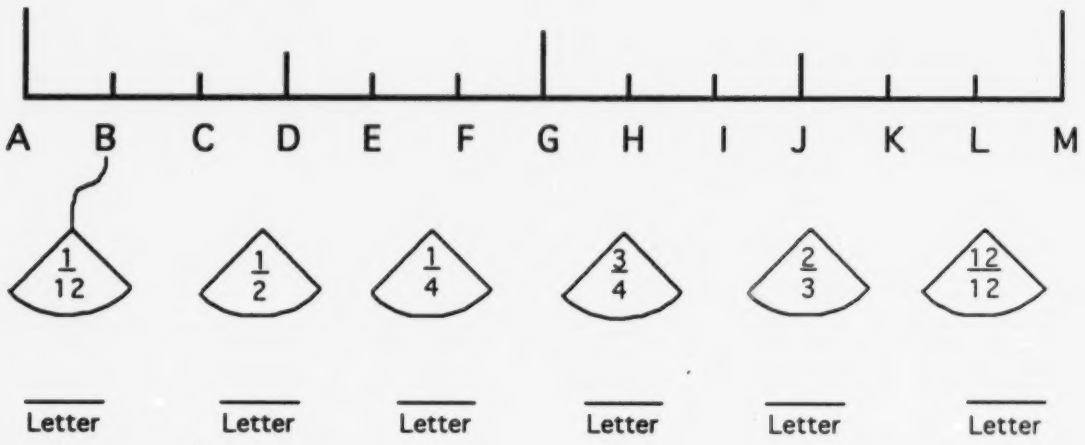
Divide and reduce.

1. $\frac{6}{26} \div \frac{1}{5} =$	2. $1\frac{3}{5} \div 6 =$
3. $6\frac{7}{8} \div 5\frac{1}{4} =$	4. $10\frac{1}{8} \div 2\frac{1}{5} =$
5. $10 \div \frac{7}{8} =$	6. $4 \div 3\frac{1}{3} =$
7. $3\frac{3}{5} \div 1\frac{9}{16} =$	8. $\frac{8}{9} \div \frac{2}{9} =$
9. $\frac{3}{5} \div 9 =$	10. $\frac{7}{12} \div \frac{2}{9} =$

SESSION 3 - ACTIVITY #14

EQUIVALENT FRACTIONS

Connect each tag to the number line using its equivalent fraction.



SESSION 3 - ACTIVITY #14 (cont.)

FRACTION CLOCK

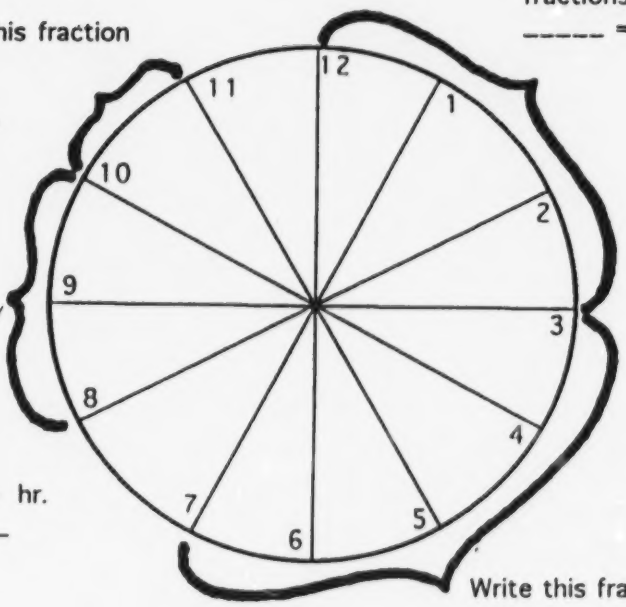
Name 2 equivalent fractions

_____ = _____

Express this fraction 2 ways

_____ or

_____



This equals

- hr. or - hr.

--- ---

Write this fraction 3 ways

-- -- --

_____, _____, _____

SESSION 4 - FRACTION WORD PROBLEMS

OBJECTIVE: **Practice setting up and solving fraction problems using the problem-solving model.**

Required materials: Black/white board

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #15 - in Student Handbook (2 hours) - Review problem-solving model from Session 2 and remind students to underline questions, circle necessary facts and star the clue words - Select 3 word problems to demonstrate to group - Elicit answers from students - Substitute any work or home related problems students bring to class in place of word problems in activity. Do as a group. - Have students work the rest of the problems individually and problem #15 in pairs - Ask students to bring decimal problems from the workplace or home to the next session	Activity #15 - Using the Problem-Solving Model with Fractions

SESSION 4 - ACTIVITY #15

USING THE PROBLEM-SOLVING MODEL WITH FRACTIONS

NOTE: Show your computation in the space below each problem so you and the instructor can check your work.

1. Anne had 3/4 lb. bar of baking chocolate. If she used 5/8 lb. of chocolate to make a cake, how much did she have left?

2. The slicing machine in the kitchen cuts turkey 1/16" thick. If the deli sandwiches you make need 3/4" of turkey on each, how many slices of turkey will you put on each sandwich?

3. If Dean spends 2/3 of an hour buffing the floor each of the 5 days he works and Joe spend 1/2 an hour emptying trash, how much time does Dean spend buffing the floor in a week?

SESSION 4 - ACTIVITY #15 (cont.)

4. Johanna is in charge of the treats for a department party. She bought 1 5/8 lb. of caramels to put in bowls and 6 1/2 lbs. of mixed nuts to put in 1/4 lb. bags. How many bags will she need for the mixed nuts?

5. Dan had a 10 lb. bag of flour. He used 2 1/3 lbs. for a cookie recipe. How much flour did he have left?

6. Max prepared a cranberry-orange jello salad in 2 pans - a 12 x 20 which serves 40 and a 12 x 8 which serves 24. When lunch time came, he learned that a number of the patients had been released early by their doctors, so only 52 jello servings were needed. Show in lowest terms, the fraction of servings not needed.

7. Elaine is preparing a cake. She needs 1 1/3 c. chopped nuts for the batter and 3/4 c. chopped nuts for the frosting. How many more nuts does she need for the batter than the frosting?

SESSION 4 - ACTIVITY #15 (cont.)

8. A recipe calls for 4 1/2 cups of flour and 2 1/4 cups of milk.

   a. Question _____
   _____

   b. _____ _____ _____ = _____

9. There's an ad in the newspaper showing a bicycle for $259.95. The sporting goods store is having a 1/3 off sale. What will you save on the bicycle at 1/3 off? Round to the nearest cent.

SESSION 4 - ACTIVITY #15 (cont.)

10. The fresh fruit and vegetable order for the hospital today included the following items. Compute the total cost of each. Round to the nearest cent.

ITEM	COST/POUND	TOTAL COST
a. 2 1/2 lbs. oranges	$.59	
b. 3 1/2 lbs. pears	$.95	
c. 4 1/4 lbs. lettuce	$.79	
d. 1 1/3 lbs. carrots	$.45	
e. 1 1/4 lbs. cucumbers	$.69	
f. 2 1/3 lbs. zucchini	$.99	

11. Amanda prepares the liquid nourishments for patients. If she needs to prepare a 3/4 c. serving for each patient and there are 51 patients, how much does she need to prepare?

12. Dee prepares food in the hospital cafeteria and injured her back on the job. She did this by lifting a covered pan of jello weighing 7 1/2 lbs, a 6-3/4 lb. can of creamed corn and a 12 lb. rack of coffee cups. How many pounds did she lift altogether?

13. Gus' car uses 1/3 gallon of gas to get to and from work each day. If he put 14 3/4 gallons of gas in the nearly empty tank today, how many days will this get him to work and back?

SESSION 4 - ACTIVITY #15 (cont.)

14. Each can of cranberry juice weighs 2 7/8 lbs. Katia has 7 cans.

    a. Question _____

    _____

    b. _____ _____ _____ = _____

15.

French Bread
makes two 18" loaves

1/2 c. milk
1 1/4 c. water
1 package yeast
4 1/3 c. flour
2 t. salt
2 t. sugar

a. Calculate the amounts of all ingredients for making 1 loaf of French bread.

b. What would be the amount of each ingredient needed to make 5 loaves of bread?

SESSION 5 - DECIMAL SKILLS REVIEW & SOLVING WORD PROBLEMS

OBJECTIVE: **Review and practice decimal operations. Practice setting up and solving decimal word problems using the problem-solving model.**

Required materials: Black/white board

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #16 - In Student Handbook (45 minutes) - Give this inventory as a review of decimal operations as well as a way to determine individual students' needs. Supplement with additional practice as necessary.	Activity #16 - Decimal Skills Review

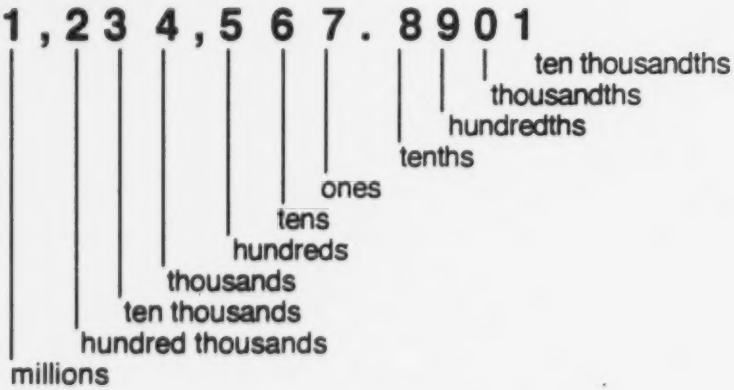
SESSION 5 - DECIMAL SKILLS REVIEW & SOLVING WORD PROBLEMS (cont.)

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #17 - in Student Handbook (1 hr. 15 min.) - Use problem-solving symbols page from Session 2, and again have students underline, circle and star necessary information - Work problems individually or in pairs depending on students' abilities - Substitute any work or home-related problems students bring to class in place of word problems in activity. Work as a group. - Ask students to bring percent problems from the workplace or home to the next session	Activity #17 - Decimal Word Problems

SESSION 5 - ACTIVITY #16

DECIMAL SKILLS REVIEW

Place Value



To review your decimal skills, answer as many of these problems as you can. When you check your answers, you'll be able to see which skills you know and which ones you need to practice before going on to solving word problems.

1. Write nine-hundred eight thousandths as a decimal.

2. Change 1/6 to a decimal.

3. Change 4.75 to a mixed number and reduce.

SESSION 5 - ACTIVITY #16 (CONT.)

4. 5.39 + .21 + .486 =

5. .63 + 1.01 + 88 =

6. 3.97 + 12 + .445 =

7. 27 - 6.8 =

8. .512 - .49 =

9. 3.7 - .52 =

SESSION 5 - ACTIVITY #16 (CONT.)

10.

$$\begin{array}{r} 4.076 \\ \times \quad 23 \\ \hline \end{array}$$

11.

$$\begin{array}{r} .084 \\ \times \quad .9 \\ \hline \end{array}$$

12.

$$\begin{array}{r} 38 \\ \times .170 \\ \hline \end{array}$$

13. $9\overline{)21.87}$

14. $.36\overline{).579}$

15. $12.8\overline{)312.7}$

16. Locate the decimal point.

X	2.1	7	10	.55
2.7	367	189	270	1485
3.10	8370	2170	3100	15500
.4	84	28	40	220
.52	1071	357	510	2805
.440	9240	30880	4400	24200

SESSION 5 - ACTIVITY #17

DECIMAL WORD PROBLEMS

NOTE: Show your computation in the space below each problem so you and the instructor can check your work. Round when necessary.

1. Tom buys each of his 7 children a soda in the cafeteria. Each soda costs $.85

   A. Question_____
   _____

   B. _____ _____ _____ = _____

2. Tom pays for the sodas with a ten dollar bill.

   A. Question_____
   _____

   B. _____ _____ _____ = _____

3. Maya and Ray bought food and supplies for the Environmental Services department party last week. They spent $5.75 on paper plates, cups, and napkins, $23.35 on a deli tray, $10.15 for punch and coffee, and $9.39 for candy and nuts. There were 12 people at the party. How much would Maya and Ray need to collect from each person to pay for the party?

SESSION 5 - ACTIVITY 17 (cont.)

4. Roger earns $7.25 an hour. If he works 30 hours this week, how much will he earn? If $55.25 is deducted for taxes, what will his take-home pay be?

5. Mr. Jacobs bought a lunch in the hospital cafeteria which included baked fish at $1.75, parsley potatoes for $.79, cole slaw for $.79, and coffee at $.30. What is the total price for the lunch? If Mr. Jacobs gives the cashier a $5 bill, how much change will he receive?

6. Thelma and Louise ate lunch together yesterday. When Louise got to the cashier, she realized she only had $2.13, but her lunch cost $4.10. Thelma offered to loan her money to pay for her lunch. How much money did Louise need to borrow?

7. A recipe Marion used for macaroni and cheese called for .54 pounds of cheddar cheese and .67 pounds of swiss cheese. how much cheese did she use altogether?

SESSION 5 - ACTIVITY 17 (cont.)

8. Louisa wears a pedometer to work every Wednesday. It shows the distance she walks from the supply room to the 3rd floor as .13 miles and the distance from the 1st floor linen closet to the 3rd floor as .08 miles. If she makes each trip 3 times a day, how far does she walk?

9. Bob offered to get lunch for his co-workers. Marilyn gave him $5.00, Fernando gave him $3.00, Nguyen $10.00, and Lubov $3.50. In order to keep things straight, Bob made this chart for himself to make sure he gave everyone correct change.

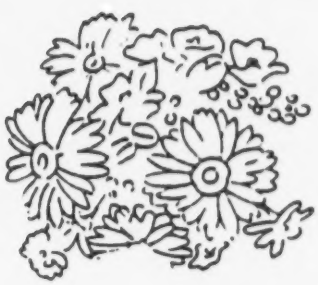
		$5	$1	$.25	$.10	$.05	$.01
Marilyn	Paid _____ Cost $2.03						
Fernando	Paid _____ Cost $2.79						
Nguyen	Paid _____ Cost $3.67						
Lubov	Paid _____ Cost $.88						

SESSION 5 - ACTIVITY 17 (cont.)

10. Miguel fills his floor polisher with 7.5 quarts of wax. If he uses .3 quart to polish a square foot of floor, how much wax does it take to polish a 320-square foot section of corridor?

11. Jean's supervisor asked her to figure out how much time she spends setting up meeting rooms each day. She came up with an average of .4 hour per floor, per day. If Jean moves furniture on 3 floors daily, how much time does she spend doing this each day?

12. If your job is to order flowers for the hospital waiting areas and you order 12.9 dozen flowers for $58.00, what do they cost per dozen?



SESSION 6 - PERCENT SKILL REVIEW AND SOLVING WORD PROBLEMS

OBJECTIVE: **Review and practice percent operations. Practice setting up and solving percent word problems.**

Required materials: Black/white board,
Overhead and transparencies (if available)

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #18 - in Student Handbook (20 minutes) - Make a transparency of the Percent Wheel and discuss with group - Elicit answers from group and write on board	Activity #18 - The Percent Wheel
Activity #19 - in Student Handbook (30 minutes) - Work through activity as a group. Use the board as necessary.	Activity #19 - Using the Percent Wheel

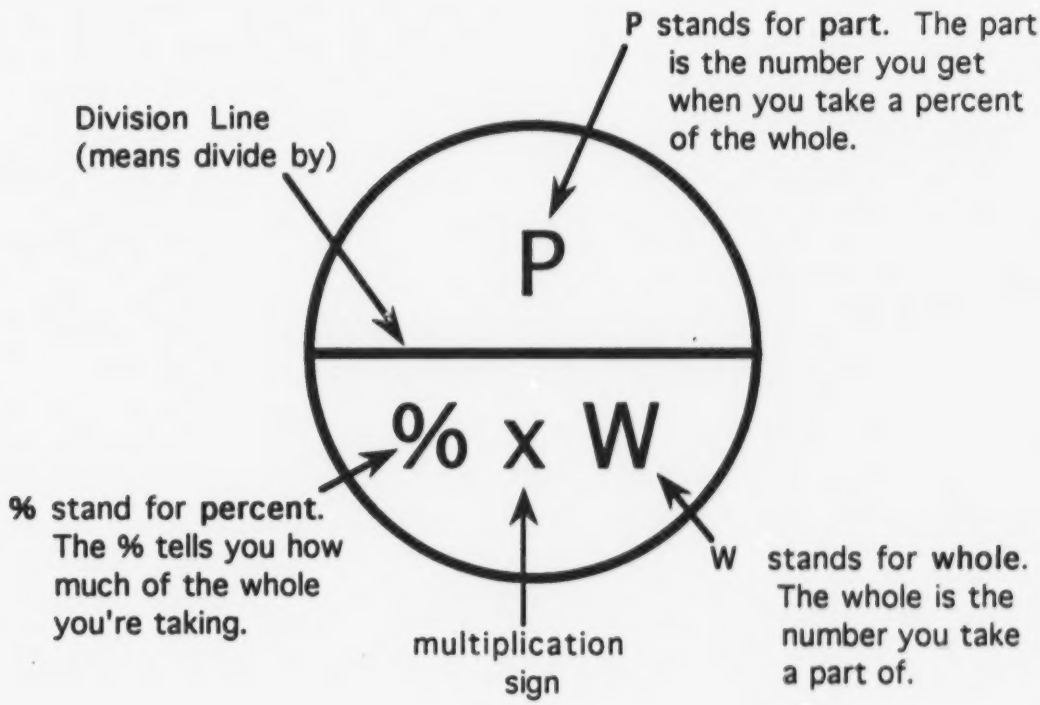
SESSION 6 - PERCENT SKILL REVIEW AND SOLVING WORD PROBLEMS (cont.)

INSTRUCTOR'S NOTES	ACTIVITIES
Activity #20 - in Student Handbook (1 hour 10 minutes) - Work first 3 problems as a group using the Percent Wheel as a guide. Work remainder of problems individually. - Share answers to the last problem with the group	Activity #20 - Percent Word Problems

SESSION 6 - ACTIVITY #18

THE PERCENT WHEEL

Percent problems can be solved by multiplication or division. To remember whether to multiply or to divide, use the **percent wheel**.


P stands for part. The part is the number you get when you take a percent of the whole.
Division Line (means divide by)
P
% x W
% stand for percent. The % tells you how much of the whole you're taking.
multiplication sign
W stands for whole. The whole is the number you take a part of.

Example 1: Identify P, %, and W in the statement below.

10% of 80 is 8

Answer: P = 8
% = 10%
W = 80

Example 2: Identify P, %, and W in the statement below.

10 is 20% of 50

Answer: P = 10
% = 20%
W = 50

SESSION 6 - ACTIVITY #18 (cont.)

Identify P, %, and W in each statement below.

1. 33 is 75% of 44

P = _____

% = _____

W = _____

2. 40% of 35 is 14.

P = _____

% = _____

W = _____

Circle the symbol of what you are asked to find.

3. What percent of 20 is 16?

P % W

4. If 25% of a number is 10, what is the number?

P % W

5. What is 18% of 150?

P % W

6. 40 is what percent of 320?

P % W

SESSION 6 - ACTIVITY #19

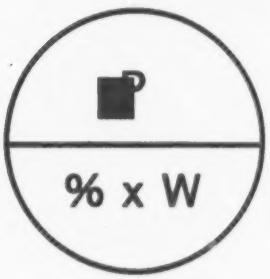
USING THE PERCENT WHEEL

To use the percent wheel:

- Cover the symbol of the number you are trying to find.
- Do the math indicated by the uncovered symbols.

Finding *part* of a whole

If Kate missed 20% of her night classes, which met 30 times, how many classes did she miss?



Step 1. Cover P (the part) - the number you are trying to find.

Step 2. Read the uncovered symbols: % x W
P = % x W

* To find the part, multiply the percent by the whole.
* Change the percent to a decimal or fraction, then multiply.

Change % to Decimal

P = % x W
P = 20% x 30
P = .20
X 30
6.00 = 6

Change % to Fraction

P = % x W

$P = \frac{1}{5} \times 30$

$P = {}_{1}\frac{1}{\cancel{5}} \times \frac{\overset{6}{\cancel{30}}}{1} = \frac{6}{1}$

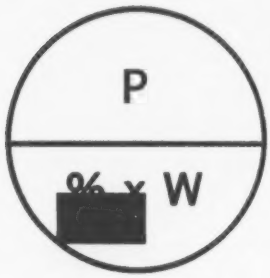
P = 6

Kate missed 6 classes.

SESSION 6 - ACTIVITY #19 (cont.)

Finding the *percent* of a whole

$360 is the regular price of a stereo you want to buy. If it's on sale for $250, what percent of the original price will you pay?



Step 1. Cover % (the percent) - the number you are trying to find.

Step 2. Read the uncovered symbols: $\frac{P}{W}$

$$\% = \frac{P}{W} \text{ (means } P \div W)$$

* To find the percent, divide the part by the whole.

$$\% = 360\overline{)250.000} \quad .694$$

$$\begin{array}{r} -2160 \\ \hline 3400 \\ -3240 \\ \hline 1600 \\ -1440 \\ \hline 160 \end{array}$$

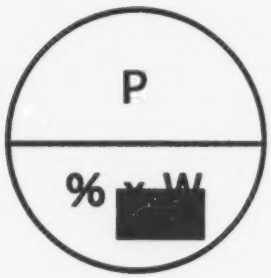
rounds to 69%

You will pay 69% of the original price.

SESSION 6 - ACTIVITY #19 (cont.)

Finding a *whole* when a part is given

Irma spends 30% of her time at work washing windows. If that amounts to 12 hours, how many hours a week does she work?



Step 1. Cover W (the whole) - the number you are trying to find.

Step 2. Read the uncovered symbols: $\frac{P}{\%}$

$$W = \frac{P}{\%} \text{ (means } P \div \%)$$

* To find the whole, divide the part by the percent.

$$W = \begin{array}{r} 40. \\ .30\overline{)12.00} \\ -120 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

Irma works 40 hours a week.

SESSION 6 - ACTIVITY #20

PERCENT WORD PROBLEMS

NOTE: Show your computation in the space below each problem so you and the instructor can check your work. Round when necessary.

1. Your department is conducting an efficiency study. Your supervisor asks you to figure out what percent of your time you spend changing linens each week. You estimate that you spend 2 hours each day doing this task. If you work 40 hours a week (in 5 days)., what percent of your time is spent changing linens?

2. Five environmental services workers rode the elevator together when they got off work the other day. Lucy, Jose, Maria, Joe and Trina weigh 719 pounds altogether. If Joe makes up 22% of the total weight, how much does he weigh?

3. An ad in the newspaper for a furniture store says everything is 20% - 50% off. If a couch is 35% off and the savings is $136.48, what is the regular price of the couch? If a pair of rocking chairs are 20% off and the saving is $51.99, what is the regular price of the rockers?

SESSION 6 - ACTIVITY #20 (cont.)

4. A hospital visitor bought scrambled eggs for $.80, 2 strips of bacon for $.75, a bagel for $.45, and orange juice for $.45. What was the total for the breakfast if the cashier gave the visitor a 10% senior citizen discount?

5. If 25% of Sue's time is spent changing bed linens and she works 35 hours per week, how many hours does she spend changing bed linens?

6. Juan is an inventory specialist and delivers latex gloves to each nurses' station weekly. His supervisor has asked him to figure out how many more gloves each unit is using this year than last. Help Juan fill out the form below.

LATEX GLOVES - COMPARATIVE USAGE				
UNIT	# used LAST YEAR	# used THIS YEAR	Difference	Percent Increase
OB/GYN	10,644	12,919	2,275	_____%
Cardiac Care	7,896	9,440	1,544	_____%
ICU	6,933	_____	_____	_____%
Pediatric	5,128	5,873	745	_____%
Orthopedics	14,006	_____	_____	_____%

SESSION 6 - ACTIVITY #20 (cont.)

7. Dana delivers food trays to patients. On Monday, she delivered 67, Tuesday, 59, and on Wednesday, 43. How many fewer trays did she deliver on Tuesday than Monday? On Wednesday than Tuesday? What <u>percent</u> decrease did she see between Monday and Wednesday?

8. Tricia bought supplies for the break room on sale at K-Mart. She picked up coffee, tea, sugar, creamer, stirrers, and napkins for 72% of the original price. If the original price of these items totaled $32.95, what did Tricia pay?

9. Margaret began her daily cleaning rounds with 30 quarts of solution. She used 5 quarts to clean the E.R., 7 quarts cleaning the waiting rooms, and 13 quarts cleaning the doctors' lounge. How much solution did she have left over that day? What percentage was left over?

SESSION 6 - ACTIVITY #20 (cont.)

10. Your supervisor asks you to total the inventory items below.

	Inventoried Items			
	Bin A	Bin B	Bin C	Bin D
gauze	23	7	6	0
tissues	--	8	11	--
cotton balls	12	13	0	28
tape	76	--	4	89
mouthwash	48	16	0	90
thermometers	7	0	102	31
latex gloves	5	38	19	0
bandaids	207	68	99	0
pitchers	0	210	112	57
clamps	342	109	0	9
a. Total				

b. What percent of the total items in Bin D does the mouthwash represent?

c. If the tape in Bins A, C, and D makes up 75% of the total rolls of tape, how many rolls of tape are there altogether?

d. If the packages of tissue in Bins B and C equal 13% of the total, how many packages of tissue would there be in all of the bins together?

SESSION 6 - ACTIVITY #20 (cont.)

A DAY IN THE LIFE ...

In this activity, you will be able to analyze your everyday activities.

Write down 5 things you do in a typical day. These could include anything -- from work duties to recreation -- anything that you actually do.

5 Things I do	as a habit	must do	hate to do	like to do
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____

For each activity, mark an "X" if you (1) do it as a habit, (2) must do it, (3) hate to do it, or (4) like to do it. You may mark more than one X for each activity.

Add up each category:

I do	_____ out of 5 as a habit.
I must do	_____ out of 5.
I hate to do	_____ out of 5.
I like to do	_____ out of 5.

What percent of time do you spend doing things as a habit? _____%
Things you must do? _____%
Things you hate doing? _____%
Things you like doing? _____%

ANSWER KEY

ANSWER KEY

Activity #1

What's your estimate?

1. How many people are going?
   Entrance fee?
   What will you do when you get there? Eat lunch/snacks/rides.

2. a. 1 minute
   b. $.35
   c. 12" (inches)

Activity #2

Answers will vary.

Activity #3

A. 1. $19.20
   2. 73,000 fans
   3. 99°
   4. 5,400 gloves

B. 1. b.
   2. b.

C. 1. 9,000 (300 x 30)
   2. 490 (100 + 300 + 90)

D. a. John spent about $2.60 (best estimate $2.25 rounds to $2.30 + .30)
   b. Cindy spent about $2.50 (best estimate $1.95 rounds to $2.00 + $.50)

ANSWER KEY

Activity #4

1. Question
2. Facts
3. Operation
4. Computation
5. Check

Fill in the label

1. Hours
2. lbs.
3. Cups, pints, or quarts
4. Blocks
5. Yards
6. Minutes

Activity #5

B.

(+ - X ÷) Add

13.92
+ 13.12
27.04 seconds

27.04
- 13.12
13.92

C. How many hours do all the drivers spend plowing snow in a day?

32 8

Mulitply

32
x8
256

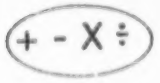
32
8 | 256

ANSWER KEY

Activity #5 (cont.)

C. How many miles of road must each snowplow cover in order to plow all the county's roads?

3,812 32



Divide

119
32 | 3812

119 x 32 = 3812

Activity #6

1. 342 ÷ 15 = 22.8 m.p.g. (rounds to 23 m.p.g.)
2. 33 - 27 = 6 hours
3. $3.15 x 3 = $9.45
4. 410 ÷ 7 = 58.57

Activity #7

2a. How much longer does it take Andrea to drive to work than Teresa?

b. Same question.

ANSWER KEY

Activity #7 (cont)

3a. How much more does Lon spend than Sarah?

b. How much more per lb. does Lon pay for hamburger than Sarah pays for chicken?

4a. How many hours does Anton attend school each week?

b. How many more hours does Anton attend school than Julia?

Activity #8

$2\frac{5}{20}$	OK	$\frac{87}{16}$
OK	$\frac{104}{5}$	$2\frac{1}{6}$
$3\frac{7}{30}$	$\frac{35}{3}$	OK

Activity #10

	$\frac{11}{12}$	$\frac{8}{10}$	$\frac{12}{20}$	$\frac{9}{11}$	$\frac{24}{45}$
+					
	$\frac{4}{7}$	$\frac{6}{11}$	$\frac{6}{16}$	$\frac{11}{24}$	$\frac{61}{100}$
-					

ANSWER KEY

Activity #11

1. $\frac{29}{36}$	2. $1\frac{5}{42}$	3. $\frac{1}{8}$	4. $4\frac{1}{14}$
5. $1\frac{3}{4}$	6. $\frac{5}{21}$	7. $1\frac{9}{20}$	8. $\frac{1}{5}$

Activity #12

1. $3\frac{1}{4}$	2. $3\frac{2}{3}$	3. $9\frac{1}{14}$	4. $13\frac{20}{33}$
5. $33\frac{2}{5}$	6. $4\frac{5}{6}$	7. $16\frac{3}{8}$	8. $6\frac{7}{8}$

Activity #13

1. $1\frac{1}{2}$	2. $\frac{3}{10}$	3. $5\frac{1}{7}$	4. $2\frac{4}{5}$	5. $\frac{2}{9}$
6. $\frac{25}{32}$	7. $3\frac{3}{7}$	8. $\frac{1}{5}$	9. $8\frac{7}{10}$	10. $92\frac{23}{24}$

ANSWER KEY

SESSION 3 - Activity #14

B	D	G	I	J	M
$\frac{1}{12}$	$\frac{1}{4}$ or $\frac{3}{12}$	$\frac{1}{2}$ or $\frac{6}{12}$	$\frac{2}{3}$ or $\frac{8}{12}$	$\frac{3}{4}$ or $\frac{9}{12}$	$\frac{12}{12}$

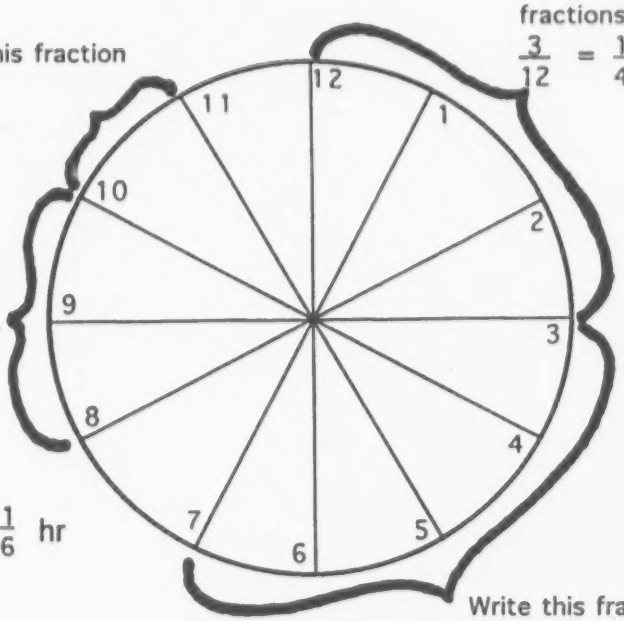
FRACTION CLOCK

Name 2 equivalent fractions

$\frac{3}{12} = \frac{1}{4}$

Express this fraction 2 ways

$\frac{1}{12}$ or $\frac{2}{24}$



This equals

$\frac{2}{12}$ hr or $\frac{1}{6}$ hr

Write this fraction 3 ways

$\frac{1}{3}$, $\frac{4}{12}$, $\frac{2}{6}$

ANSWER KEY

Activity #15 - Using the Problem-Solving Model with Fractions

1. $\frac{1}{8}$ lb.	**2.** 9 Slices	**3.** $3\frac{1}{3}$ hours
4. 26 bags	**5.** $7\frac{2}{3}$ lbs.	**6.** $\frac{13}{16}$ of the serving
7. 7/12 c.	**8.** Answers will vary	**9.** $86.65
10. a. $1.47 b. $3.33 c. $3.36 d. $.60 e. $.86 f. $2.31	**11.** $38\frac{1}{4}$ cup	**12.** $26\frac{1}{4}$ lb.
13. 44 days	**14.** Answers will vary	

ANSWER KEY

Activity #15

Ingredients for 1 loaf	Ingredients for 5 loaves
$\frac{1}{4}$ c. milk	$1\frac{1}{4}$ c. milk
$\frac{5}{8}$ c. water	$3\frac{1}{8}$ c. water
$\frac{1}{2}$ pkg. yeast	$2\frac{1}{2}$ pkg. yeast
$2\frac{1}{6}$ c. flour	$10\frac{5}{6}$ c. flour
1 t. salt	5 t. salt
1 t. sugar	5 t. sugar

Activity #16 - Decimal Skills Review

1. .908	**2.** .17	**3.** $4\frac{3}{4}$	**4.** 6.09	**5.** 89.64
6. 16.42	**7.** 20.2	**8.** .02	**9.** 3.18	**10.** 93.75
11. .08	**12.** 6.46	**13.** 2.43	**14.** 1.61	**15.** 24.43

ANSWER KEY

Activity #16 - Locate the Decimal point

X	2.1	7	10	.55
2.7	3.67	18.9	27.0	1.485
3.10	8.370	21.70	31.00	1.5500
.4	.84	2.8	4.0	.220
.52	1.071	3.57	5.10	.2805
.440	.9240	3.080	4.400	.24200

Activity #17

1. Answers will vary	**2.** Answers will vary
3. $4.05	**4.** $217.50, $162.25
5. $3.63, $1.37	**6.** $1.97
7. 1.21#	**8.** .63 miles

ANSWER KEY

Activity #17 (cont)

9.		$5	$1	$.25	$.10	$.05	$.01
Marilyn	Paid $2.97 Cost $2.03		2	3	2		2
Fernando	Paid $.21 Cost $2.79				2		1
Nguyen	Paid $6.33 Cost $3.67	1	1	1		1	3
Lubov	Paid $2.62 Cost $.88		2	2	1		2

10. 96 quarts

11. 1.2 hours

12. $4.50

Activity #18

1. P = 33
   % = 75%
   W = 44

2. P = 14
   % = 40%
   W = 35

87

ANSWER KEY

Activity #18 (cont)

3. %

4. W

5. P

6. %

Activity #20

1. 25%	**2.** 158#
3. $389.94 Couch $259.95 Chair	**4.** $2.20
5. $8\frac{3}{4}$ hours	

ANSWER KEY

Activity #20 (cont)

6.	LATEX GLOVES - COMPARATIVE USAGE			
UNIT	# used LAST YEAR	# used THIS YEAR	Difference	Percent Increase
OB/GYN	10,644	12,919	2,275	21 %
Cardiac Care	7,896	9,440	1,544	20 %
ICU	6,933	7,143	210	3 %
Pediatric	5,128	5,873	745	12 %
Orthopedics	14,006	18,127	4,121	29 %

7. 8 fewer trays Tues. than Mon.
16 fewer trays Wed. than Tues.

8. $23.72

9. 17%

10. a.

Bin A	Bin B	Bin C	Bin D
620	469	353	304

b. 30%
c. 225 rolls of tape
d. 146 packages